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political economy or Greek? But all professors of political economy are interested in selecting a good man to teach that subject. Therefore each professor in the several Italian universities belonging to the faculty, be it law, medicine, or theology, where the choice is to be made, names the five men whom he thinks best fitted to decide the question. The votes are counted, and the five men whom most professors have confidence in form the board. Anyone is free to compete for the position, and applications are invited by public advertisement. In the case of an important post, like that at Naples, the competition is particularly active, including many of Italy's leading economists. The decision is made after careful consideration of the published work of each applicant, with some attention to other evidences of his ability, and is virtually an acknowledgment of the primacy of the one chosen. Therefore the present appointment may well be a source of satisfaction to Professor Pantaleoni and his friends, as well as a cause of rejoicing to all who favor freedom in speech and writing.

THE USE AND VALUE OF CENSUS STATISTICS.

IN his *Growth of Capital*, Robert Giffen enters an "emphatic protest against the heedless, off-hand use of statistics; "country has been compared with country and period with period in the most reckless fashion without any attention to the comparability of the data." That some such warning is not uncalled for is forcibly brought to our attention by Mr. Mulhall's recent paper on "Power and Wealth of the United States."¹ This writer's standing as a popularly accepted expositor of statistical matters, as well as the currency obtained by the conclusions which he reaches in the paper in question, must serve as apology for a critical examination of the methods by which these conclusions are reached. Such an examination is all the more in place, since the unparalleled prosperity which Mr. Mulhall finds to prevail in this country, especially in manufacturing industry, seems to be contradicted by a pretty widespread discontent among those who are said to enjoy this prosperity. Indeed, this apparent contradiction suggests the ungracious possibility that there may be a large element of fiction contained in the alleged facts which the author declares "are undoubtedly of the highest importance to the human race."

¹ *North American Review*, June 1895.

Mr. Mulhall bases his conclusions on the figures of our census reports, but he seems not to have inquired more closely as to what these figures represent,—whether the estimates of wealth and the reports regarding manufactures and the wages of labor in the different decades are comparable.

To substantiate the declaration that “the average of wages has risen 60 per cent. since 1870, Mr. Mulhall presents the following table, compiled from the United States Census Reports:

| Year | Number of Operatives | Wages Paid (Millions of Dollars) | Dollars Per Operative |
|------------|----------------------|-------------------------------------|--------------------------|
| 1860 | 1,311,000 | 379 | 289 |
| 1870 | 2,054,000 | 620 | 302 |
| 1880 | 2,733,000 | 943 | 347 |
| 1890 | 4,713,000 | 2283 | 485 |

Had Mr. Mulhall examined the census bulletins of manufacturers of the eleventh census he would have found this remark: “In comparing industrial statistics for 1880 and 1890 it should be borne in mind, as stated by the Superintendent of Census, that radical changes have been made in 1890 as well in form and scope of inquiry as in the method of presentation.” He would also have found it explained that “In the form of inquiry used in the eleventh census respecting labor and wages the classified occupation and wage system was adopted. Officers or firm members engaged in productive labor or supervision of the business constitute one class, for which the wages reported are those which would be paid to employees for similar service.” While on referring to the earlier census reports, we find that in them neither firm members, officers of corporations, nor clerks were returned as operatives, nor the value of their services included in the wage account. On looking farther, we find the enormous increase in the number returned as engaged in manufacturing industries at the census of 1890, explained, at least in part, by the fact that previous censuses included as operatives only those engaged in employments where machinery is used to a large extent. Obviously, there is a substantial difference in character between the wages statistics of the two census reports. On page 704, Part II., *Compendium Eleventh Census*, it is remarked that “No previous census of the United States obtained so complete reports regarding such trades as masonry, carpentering, blacksmithing, cooperage, painting, plumbing, and similar trades using machinery to a limited extent.” Referring to the table

of occupations, we find enumerated at the tenth and eleventh census respectively:

| | 1880 | 1890 |
|---------------------------------|--------|---------|
| Carpenters | 54,138 | 140,120 |
| Plumbers | 9,684 | 42,583 |
| Painters and paperhangers | 17,711 | 56,281 |
| Plasterers | | 10,624 |
| Masonry (brick and stone) | 16,020 | 108,405 |

We here have in five occupations an increase of 265 per cent., with an increase in the population of the country of 25 per cent. A similar increase, though less marked, is found in other similar employments. Obviously, this large apparent increase in the number of persons engaged in these employments is due to the change in the method of enumeration, rather than to any actual increase. In these occupations, wages as reported average fully 50 per cent. higher than the average of wages in employments previously enumerated as manufacturing industries. There are further reported 461,009 employers, clerks and officers of corporations, with average wages nearly double the wages of other employees, which also goes to raise the apparent average wages. In replying to a letter calling his attention to the deceptive character of recently issued census bulletins regarding wealth and manufactures, the Commissioner of Labor in charge of Census, under date of May 3, 1894, wrote:

You are aware, of course, that all the tabulations of the eleventh census were practically completed before I took charge of it. If there are glaring errors in it I am unable to help it, because I could not retake the census. My duty is simply to bring the results out in as creditable a way as possible. I am in no way responsible for the plans of the census or the collection of statistics. . . . The fact that a number of industries are included in the eleventh census that were omitted or neglected at the tenth cannot lessen the value of the figures for 1890. Omitting these industries for 1890, the figures for the census can be used (certainly in a rough way). The figures reported for the two censuses are comparable in every particular, except in so far as the schedule used at 1890 has obtained a more full and complete report. While the adoption of such a schedule was unfortunate, if the desire was to obtain only such figures as could be compared with 1880, it was a step in advance, and has resulted in obtaining a more complete report of the mechanical and manufacturing industries than shown by any previous census. The canvass of the principal cities was undoubtedly more thorough than at

1880; but, on the other hand, it is believed that the canvass of the rural districts was more complete at 1880 than at 1890. It therefore cannot be said that the entire canvass of 1890 was more complete than at 1880.

It is probable that the more thorough canvass of the cities of 1890 has resulted in a large showing for such industries as masonry, carpentering, plumbing, painting and plastering referred to by you. Undoubtedly a number of establishments were omitted in the canvass of both censuses. . . . The inclusion in the schedule of separate questions concerning the number and salary of officers, firm members and clerks has without doubt resulted in obtaining a more complete report of these classes, but it cannot be said that they were entirely omitted in 1880, because the schedule used for some of the textile industries has separate questions for these classes.

It is true, however, that in the large majority of industries, officers, firm members and clerks were only reported where the manufacturer considered they should be included in answer to the question, "Greatest number of hands employed?"

The schedule of 1890 also had separate questions concerning piece work, and this may have resulted in a more full report of that class of employees. . . . The criticism that "explanatory remarks count for little, as the figures only are taken seems to be trivial; all statistical data must be accompanied with explanation, and any one attempting to use the figures should give such explanation careful study.

The criticism made in the letter, to which the Commissioner of Labor made this reply, that explanatory remarks count for little, as the figures only are taken, cannot be trivial if it is true, and the fact that our census figures are universally quoted with utter disregard of the explanatory remarks, even by those who, like Mr. Mulhall, are accustomed to deal with statistics, proves its truth.

The Commissioner of Labor asserts that "the figures reported at the two censuses for the same industries are comparable in every particular, *except in so far as the schedule used in 1890 has obtained a more complete and full report.*" That is precisely the point. At the census of 1880 the canvass of the rural districts, where wages are lower, was more thorough than at the census of 1890. While the latter census, neglecting the rural districts, shows an enormous increase in the number of higher-paid city mechanics not included in any previous census. If instead of including officers of corporations, employers and clerks, and higher-paid city mechanics not previously included, to the number of a million or more, Mr. Porter had included a like number of farm laborers, who use machinery to a larger extent than painters,

plasterers and plumbers, whom he does include, he might conceivably have succeeded in showing a large decrease, instead of a large increase, in the average of wages. As to the Commissioner of Labor's statement, that clerks and officers of corporations were not entirely omitted from the census of 1880, while it is true that in the cotton goods industry 2115 officers and clerks were included in the enumeration of employees, their salaries were not included in the wage account, nor were they included in the number of operatives. (See *Compendium Tenth Census*, Vol. II., p. 1125.) Excluding employers, officers and clerks from the number of operatives, and the estimated value of their services, amounting to \$391,988,208, from the wage account, there is an apparent average earnings for each operative of \$442, instead of \$485. But even this result is delusive, for the amount is obtained by dividing the aggregate wages (which is the earnings of the whole number of employees) by the average number employed.

In his table Mr. Mulhall claims to give the total number of operatives employed, but a reference to the *Census Reports*, or to page 344 of the *Statistical Abstract* for 1894, will show that the number quoted by him is the *average* number of operatives. In factories where work is steady the difference is not material, but in the building trades, where but few find steady employment for more than half the year, the difference is very material. Including their earnings in the wage account and dividing by the average number of employees serves to swell the apparent average earnings. To illustrate: An establishment in one of the building trades may employ 100 men for 100 days at \$3.00 per day; 60 of these men another 100 days at \$2.50 per day, and ten of the men another 100 days at \$2.00 per day. This would make the total wages for 300 days \$47,000 and the average number of employees $56\frac{2}{3}$. Dividing the total of wages by the average number employed, we have an apparent average of earnings of \$829. As, however, there are 100 employees the correct average earnings would be \$470, which makes a very appreciable difference to the wage earner if not to the statistician.

The fallacy of Mr. Mulhall's conclusions as to the increase of wages is also shown by the investigations of the department of labor presented in the *Report of the Senate Finance Committee on Wholesale Prices, Wages and Transportation*, from which it appears that the increase in the average of wages from 1880 to 1890 was less than 19 per cent., or when averaged according to relative importance, 23 per

cent. The increase from 1872, when wages had reached their highest point, to 1891 was by simple average, $5\frac{1}{2}$ per cent., or when averaged according to importance, 10 per cent.

No less fallacious than his conclusion as to the increase of wages are Mr. Mulhall's conclusions as to the increase of wealth, and for the same reason, namely, the data compared are not comparable. This incomparability Mr. R. P. Porter, late Superintendent of Census, acknowledged in an article published in the *Chicago Record*, November 5, 1892, by inserting opposite the estimates of value for 1860 and 1890 in a table which he presented the remark: "A comparison cannot be made; 1860 only includes estimated true value based upon assessed property." But while thus acknowledging the incomparability of these estimates of value, Mr. Porter's Census Bulletins, from which Mr. Mulhall's figures are taken tabulate these estimates under the same heading. Census Bulletin 379 gives the following:

| TRUE VALUE OF ALL REAL AND PERSONAL PROPERTY | | | | ASSESSED VALUATION OF REAL AND PERSONAL PROPERTY | | |
|--|------------------|----------|------------------|--|----------|------------------|
| | Amount | Per Cap. | Increase Per Ct. | Total | Per Cap. | Increase Per Ct. |
| 1850 | \$ 7,135,790,228 | \$ 308 | | \$ 6,024,666,909 | \$260 | |
| 1860 | 16,159,616,058 | 514 | 126.46 | 12,084,560,005 | 384 | 100.58 |
| 1870 | 30,068,518,507 | 790 | 85.07 | 14,178,986,732 | 368 | 17.33 |
| 1880 | 43,642,000,000 | 870 | 45.14 | 17,139,903,495 | 342 | 20.88 |
| 1890 | 65,037,091,197 | 1039 | 49.02 | 25,473,173,418 | 407 | 48.62 |

It is evident from the small difference between the true and assessed values in 1850, and from the entire omission of the value of unorganized territories, that no account was taken at that time of the vast area of vacant public lands or any other property, real or personal, exempt from taxation and the same is probably true, at least to a considerable extent, in 1860. The true valuation reported for 1870 is believed to include, not only the property taxed, but also to a great extent that exempt from taxation by law, or escaping it by fraudulent evasion, but little information as to the kinds of property included is published. The report of 1880 shows a classification of the property included, indicating a more rigorous investigation as to the values.

The more rigorous investigation of the census of 1880 may be explained by the fact that the law of 1850, which made it the duty of the United States marshals to collect the statistics and make the estimates of values, had prior to that census been so amended as to provide for the appointment of a special agent for that duty. Mr. Robert P. Porter, late Superintendent of Census, was appointed to that office,

and with such effect that, although assessed values had increased but 20 per cent., he succeeded in finding an increase in true value of 45 per cent. In the remarks of bulletin 379 above quoted, it is stated "that the same is *probably* true, at least *to a considerable* extent, in 1860." In point of fact, there seems to be no doubt on the part of the census officials that what holds true of the census of 1850 in this report is also true, wholly and unquestionably, of the census of 1860. In his "Introduction to the Eleventh Census" (Vol. I., p. 25), Mr. Porter also remarks: "The estimate of true value is necessarily based on data more or less incomplete and imperfect. Prior to 1880 no attempt was made to go outside the assessor's returns." This latter remark does not properly apply to the census of 1870, and in so far may be taken as an illustration of the inaccuracy of statement of the present census; but if prior to either 1870 or 1880 no attempt was made to go outside of the assessor's returns, the valuation of 1860 should not be accepted as the true value of all property and so used in comparisons with the figures obtained in later censuses. This caution might seem almost unnecessary in view of the fact that General Walker, in the Report of the Census of 1870 (*Ninth Census*, Vol. III., p. 8), has taken the pains to enter a caution against such use of the figures of censuses previous to the ninth. And in the same volume (p. 3) he further explains:

Valuation—That part of the social statistics schedule of 1850 which is devoted to the subject of valuation has always been understood to require:

First—A positive statement of real estate *as assessed* for purposes of state and local taxation.

Second—A positive statement of the value of personal property *as assessed* for purposes of state and local taxation.

Third—An estimate of the officer making the return of the true value of both species of property combined. The phraseology of the schedule in this matter is most unfortunate, but it has always been understood (interpreted is hardly the word) to mean what is given above.

General Walker's caution is further borne out by the following statement of the Superintendent of the Eighth Census (volume on *Mortality and Miscellaneous Statistics*, p. 294): "The marshals of the United States were directed to obtain from the records of the states and territories respectively, an account of the value of real and personal estate as assessed for taxation. Instruction was given these officers to add the proper amounts to the assessments so that the

returns should represent as well the true or intrinsic value as the inadequate sum generally attached to property for taxable purposes. . . . It must be borne in mind that the value of all taxable property was returned, including that of foreigners as well as natives, while all was omitted belonging to the United States."

In view of these repeated admissions and cautions on part of the officials in charge of the United States' statistical work, there can be no question as to the misleading character of any naïve comparison of the figures of wealth obtained by earlier censuses with those obtained in 1880 and 1890. Such a comparison must give an exaggerated impression of the growth of the country's wealth, as well of the increase in aggregate and *per capita* wages paid.

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